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Human sympathoadrenal system and adrenal cortex in prepubertal and pubertal periods

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Abstract

A complex study of the functional state of the sympathoadrenal system and adrenal cortex in 10-15-year-old children of both sexes was carried out using the indices of daily excretion of adrenaline, noradrenaline, 17-ketosteroids, and 17-hydroxycorticosteroids. A synchronism in the functional activity of the mediator component of the sympathoadrenal system as well as of the androgenic and glucocorticoid functions of the adrenal cortex was observed with age and during pubertal development of children. At the same time, heterochronic maturation was observed in the sex groups: in girls at the age of 10 and 12 years and in boys at the age of 14-15 years. The changes of different direction and intensity in the excretion of the studied hormones and hormonal metabolites were observed in the sex and age groups. A sharp increase in the daily excretion of glucocorticoid metabolites accompanied by a considerable decrease in the age index of noradrenaline secretion was observed in 14-and 15-year-old boys from beginning to end of school year; in addition, an increase in the daily excretion of sex hormones was observed at the age of 15 years. In girls, these indices varied within the age range, which points to a more sophisticated neuroendocrine control of physiological functions in girls during puberty. © 2008 MAIK Nauka.

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Keywords

Adrenal cortex, Children, Pubertal stages, School year periods, Sympathoadrenal system